

10448-213001.TXT

SEQUENCE LISTING

<110> O'Keefe, Theresa
Ponath, Paul

<120> HUMANIZED ANTI-CCR2 ANTIBODIES AND
METHODS OF USE THEREOF

<130> 10448-213001

<150> US 10/272,899

<151> 2002-10-17

<150> US 60/392,364

<151> 2002-06-26

<150> US 60/350,166

<151> 2001-10-19

<160> 122

<170> FastSEQ for windows Version 4.0

<210> 1

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 1

tgagacaagc cacaagctga ac

22

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<223> primer

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tctgtattag tacacacagc cc

22

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<211> 24

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<213> Artificial Sequence

<220>

<223> primer

<400> 3

atgctgtcca catctcggtc tcgg

24

<210> 4

<211> 27

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<213> Artificial Sequence

<220>
<223> primer

<400> 4
ttataaacca gccgagactt cctgctc

27

<210> 5
<211> 24
<212> PRT
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<220>
<223> CD5 signal peptide leader sequence

<400> 5
Met Pro Met Gly Ser Leu Gln Pro Leu Ala Thr Leu Tyr Leu Leu Gly
1 5 10 15
Met Leu Val Ala Ser Val Leu Ala
20

<210> 6
<211> 60
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<220>
<223> primer

<400> 6
ggggatccag aaaccatgcc catgggggtct ctgcaaccgc tggccacctt gtacctgctg

60

<210> 7
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 7
gccaccttgt acctgctggg gatgctggtc gcttccgtgc tagcgatgct gtccacatct
cgttc

60
65

<210> 8
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 8
gacgaccagc atgttgcc

18

<210> 9
<211> 112
<212> PRT
<213> Mus musculus

<400> 9
Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Val Gly
1 5 10 15
His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser

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Asp	Gly	Lys	Thr	Phe	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Lys	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val	Pro
	50					55					60				
Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65					70					75					80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Trp	Gln	Gly
				85					90					95	
Thr	His	Phe	Pro	Tyr	Thr	Phe	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	
			100					105					110		

<210> 10
 <211> 117
 <212> PRT
 <213> Mus musculus

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Lys	Gly
1				5					10					15	
Ser	Leu	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Ser	Phe	Asn	Ala	Tyr
			20					25					30		
Ala	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			
Ala	Arg	Ile	Arg	Thr	Lys	Asn	Asn	Asn	Tyr	Ala	Thr	Tyr	Tyr	Ala	Asp
	50					55				60					
Ser	Val	Lys	Asp	Arg	Tyr	Thr	Ile	Ser	Arg	Asp	Ser	Glu	Ser	Met	
65					70					75				80	
Leu	Phe	Leu	Gln	Met	Asn	Asn	Leu	Lys	Thr	Glu	Asp	Thr	Ala	Met	Tyr
				85					90					95	
Tyr	Cys	Val	Thr	Phe	Tyr	Gly	Asn	Gly	Val	Trp	Gly	Thr	Gly	Thr	Thr
			100					105					110		
Val	Thr	Val	Ser	Ser											
			115												

<210> 11
 <211> 111
 <212> PRT
 <213> Homo sapiens

Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly
1				5					10					15	
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	His	Ser
			20					25					30		
Asp	Gly	Asn	Thr	Tyr	Leu	Asn	Trp	Phe	Gln	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Asp	Ser	Gly	Val	Pro
	50					55				60					
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65					70					75					80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Met	Gln	Gly
				85					90					95	
Thr	His	Trp	Pro	Phe	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Glu	Ile	
			100					105					110		

<210> 12
 <211> 112
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

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<400> 12

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Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1          5          10          15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
          20          25          30
Asp Gly Lys Thr Phe Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
          35          40          45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
          50          55          60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65          70          75          80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
          85          90          95
Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
          100          105          110

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<210> 13

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> humanized sequence

<400> 13

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Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1          5          10          15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
          20          25          30
Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
          35          40          45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
          50          55          60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65          70          75          80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
          85          90          95
Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
          100          105          110

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<210> 14

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> humanized sequence

<400> 14

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Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1          5          10          15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
          20          25          30
Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
          35          40          45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
          50          55          60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65          70          75          80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
          85          90          95
Thr His Phe Pro Tyr Thr Phe Gly Gly Gly Thr Arg Leu Glu Ile Lys
          100          105          110

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100

105

110

<210> 15
 <211> 112
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

<400> 15
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
 85 90 95
 Thr His Phe Pro Tyr Thr Phe Gly Gly Gly Thr Arg Leu Glu Ile Lys
 100 105 110

<210> 16
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 16
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
 50 55 60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Asp Ser Leu Pro Pro His Arg Val Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser
 115

<210> 17
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

<400> 17
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ala Tyr
 20 25 30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

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      35      40      45
Gly Arg Ile Arg Thr Lys Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
  50      55      60
Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Ser Lys Asn Thr
  65      70      75      80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
      85      90      95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
      100      105      110
Val Thr Val Ser Ser
      115

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<210> 18
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

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<400> 18
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
      20      25      30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Gly Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
      50      55      60
Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
      65      70      75      80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
      85      90      95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
      100      105      110
Val Thr Val Ser Ser
      115

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<210> 19
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

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<400> 19
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
      20      25      30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
      50      55      60
Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
      65      70      75      80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
      85      90      95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
      100      105      110
Val Thr Val Ser Ser
      115

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<210> 20
 <211> 117
 <212> PRT
 <213> Artificial sequence

<220>
 <223> humanized sequence

<400> 20
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
 20 25 30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60
 Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Val Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
 100 105 110
 Val Thr Val Ser Ser
 115

<210> 21
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 21
 Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Val Gly
 1 5 10 15
 His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
 85 90 95
 Thr His Phe Pro
 100

<210> 22
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 22
 Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

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65 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly 80
 85 75 90 95
 Thr His Phe Pro 100

<210> 23
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 23
 Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
 20 25 30
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Val Gln Gly
 85 90 95
 Thr His Phe Pro 100

<210> 24
 <211> 100
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (1)...(100)
 <223> Xaa = Any Amino Acid

<400> 24
 Asp Val Val Met Thr Gln Xaa Leu His Ser Leu Ser Val Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
 20 25 30
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Val Gln Pro
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Tyr Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Xaa Pro Glu Asp Leu Gly Val Tyr Xaa Cys Met Gln Asp
 85 90 95
 Thr His Phe Pro 100

<210> 25
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 25
 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30

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Asn Gly Asn Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Phe Gln Gly
 85 90 95
 Thr His Val Pro
 100

<210> 26
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 26
 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Leu Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 Ser His Val Pro
 100

<210> 27
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 27
 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
 85 90 95
 Thr His Val Pro
 100

<210> 28
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 28
 Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30

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Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 Ser His Val Pro
 100

<210> 29
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 29
 Asp Ala Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Glu Asn Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu Asn Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Leu
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Leu Gln Val
 85 90 95
 Thr His Val Pro
 100

<210> 30
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 30
 Asp Val Leu Leu Thr Gln Thr Pro Leu Phe Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Ser Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Gly Asn Tyr Tyr Leu Glu Trp His Leu Gln Lys Ser Gly Gln Ser
 35 40 45
 Leu Gln Leu Leu Ile Tyr Glu Val Ser Lys Arg His Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Pro Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 Thr His Leu Pro
 100

<210> 31
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 31
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30

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Ser Gly Asn Thr Tyr Leu Tyr Trp Phe Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Tyr Ile Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
 85 90 95
 Leu Glu Tyr Pro
 100

<210> 32
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 32
 Asp Ile Val Ile Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly
 1 5 10 15
 Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Lys
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
 65 70 75 80
 Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln Leu
 85 90 95
 Val Glu Tyr Pro
 100

<210> 33
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 33
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Asn Gly Ile Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro
 100

<210> 34
 <211> 101
 <212> PRT
 <213> Mus musculus

<400> 34
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Lys Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
 20 25 30

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Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Arg Thr Lys Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60
 Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Glu Ser Met
 65 70 75 80
 Leu Phe Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Met Tyr
 85 90 95
 Tyr Cys Val Thr Phe
 100

<210> 35
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 35
 Glu Val Gln Leu Val Glu Val Trp Trp Arg Met Val Gln Pro Lys Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
 20 25 30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Arg Ser Lys Ser Ser Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60
 Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Gln Ser Met
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Met Tyr
 85 90 95
 Tyr Cys Val Ile
 100

<210> 36
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 36
 Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Gln Ile Arg Leu Lys Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Gly
 100

<210> 37
 <211> 100
 <212> PRT
 <213> Mus musculus

<400> 37
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Thr Asp Tyr
 20 25 30

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Tyr Met Ser Trp Val Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu
 35 40 45
 Gly Phe Ile Arg Asn Lys Ala Asn Gly Tyr Thr Thr Glu Tyr Ser Ala
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Ser Ile
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Thr Leu Arg Ala Glu Asp Ser Ala Thr Tyr
 85 90 95
 Tyr Cys Ala Arg
 100

<210> 38
 <211> 98
 <212> PRT
 <213> Mus musculus

<400> 38
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Thr Met Ser Trp Val Arg Gln Ser Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Thr Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
 85 90 95
 Thr Arg

<210> 39
 <211> 98
 <212> PRT
 <213> Mus musculus

<400> 39
 Asp Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Thr Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
 85 90 95
 Thr Arg

<210> 40
 <211> 98
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (1)...(98)
 <223> Xaa = Any Amino Acid

10448-213001.TXT

<400> 40

```

Glu Leu Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1      5      10      15
Ser Arg Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20      25      30
Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35      40      45
Ala Ala Ile Ser Thr Asp Gly Ser Phe Ile Tyr Xaa Pro Asp Thr Val
50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Phe
65      70      75      80
Leu Gln Met Ser Ser Leu Arg Tyr Glu Asp Thr Ala Met Tyr Tyr Cys
85      90      95
Leu Arg

```

<210> 41

<211> 98

<212> PRT

<213> Mus musculus

<400> 41

```

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1      5      10      15
Ser Leu Lys Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Tyr
20      25      30
Tyr Met Tyr Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35      40      45
Ala Tyr Ile Ser Asn Gly Gly Gly Ser Thr Tyr Tyr Pro Asp Thr Val
50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65      70      75      80
Leu Gln Met Ser Arg Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
85      90      95
Ala Arg

```

<210> 42

<211> 101

<212> PRT

<213> Mus musculus

<400> 42

```

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Ala
1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ser Ser Gly Phe Thr Phe Thr Asp Tyr
20      25      30
Tyr Met Asn Trp Val His Arg Pro Pro Gly Lys Pro Leu Glu Trp Leu
35      40      45
Ala Leu Ile Arg Asn Lys Ala Asn Gly Tyr Ile Thr Glu Tyr Ser Ala
50      55      60
Ser Met Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Ser Ile
65      70      75      80
Leu Tyr Leu Gln Met Asn Thr Leu Ser Thr Glu Asp Ser Ala Thr Tyr
85      90      95
Tyr Cys Ala Arg Asp
100

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<210> 43

<211> 100

<212> PRT

<213> Mus musculus

10448-213001.TXT

<400> 43

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe
 20 25 30
 Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile
 35 40 45
 Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala
 50 55 60
 Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr
 85 90 95
 Tyr Cys Ala Arg
 100

<210> 44

<211> 98

<212> PRT

<213> Mus musculus

<400> 44

Glu Val Met Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Thr Ile Ser Ser Gly Gly Gly Asn Thr Tyr Tyr Pro Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Asn Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg

<210> 45

<211> 98

<212> PRT

<213> Mus musculus

<400> 45

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Gly Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Thr Ile Ser Gly Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Asn Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg

<210> 46

<211> 101

<212> PRT

<213> Mus musculus

10448-213001.TXT

<400> 46

Glu Val Lys Leu Met Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Ala
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Thr Asp Tyr
 20 25 30
 Tyr Met Ser Trp Val Arg Gln Leu Pro Arg Lys Ser Pro Glu Trp Leu
 35 40 45
 Ala Leu Ile Arg Asn Lys Ala Asn Gly Tyr Thr Thr Glu Tyr Ser Ala
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Asn Ile
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Thr Leu Arg Ala Glu Ala Ser Ala Thr Tyr
 85 90 95
 Tyr Cys Ala Lys Asp
 100

<210> 47

<211> 98

<212> PRT

<213> Mus musculus

<400> 47

Glu Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
 50 55 60
 Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg

<210> 48

<211> 89

<212> PRT

<213> Mus musculus

<400> 48

Gly Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser
 1 5 10 15
 Gly Phe Thr Phe Ser Ser Tyr Gly Met Trp Val Arg Gln Thr Pro
 20 25 30
 Asp Lys Arg Leu Glu Leu Val Ala Thr Ile Asn Ser Asn Gly Gly Ser
 35 40 45
 Thr Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
 50 55 60
 Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu
 65 70 75 80
 Asp Thr Ala Met Tyr Tyr Cys Ala Arg
 85

<210> 49

<211> 89

<212> PRT

<213> Mus musculus

<400> 49

Gly Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser

10448-213001.TXT

```

1      5      10      15
Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Thr Pro
20      25      30
Glu Lys Arg Leu Glu Trp Val Ala Thr Ile Ser Ser Gly Gly Ser Tyr
35      40      45
Thr Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
50      55      60
Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg Ser Glu
65      70      75      80
Asp Thr Ala Met Tyr Tyr Cys Ala Arg
85

```

<210> 50
 <211> 89
 <212> PRT
 <213> Mus musculus

```

<400> 50
Gly Leu Val Gln Pro Gly Gly Ser Arg Lys Leu Ser Cys Ala Ala Ser
1      5      10      15
Gly Phe Thr Phe Ser Ser Phe Gly Met His Trp Val Arg Gln Ala Pro
20      25      30
Glu Lys Gly Leu Glu Trp Val Ala Tyr Ile Ser Ser Gly Ser Ser Thr
35      40      45
Ile Tyr Tyr Ala Asp Thr Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
50      55      60
Asn Pro Lys Asn Thr Leu Phe Leu Gln Met Thr Ser Leu Arg Ser Glu
65      70      75      80
Asp Thr Ala Met Tyr Tyr Cys Ala Arg
85

```

<210> 51
 <211> 88
 <212> PRT
 <213> Mus musculus

```

<400> 51
Gly Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser
1      5      10      15
Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Thr Pro
20      25      30
Glu Lys Arg Leu Glu Trp Val Ala Ser Ile Ser Ser Gly Gly Ser Thr
35      40      45
Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
50      55      60
Ala Arg Asn Ile Leu Tyr Leu Gln Met Ser Ser Leu Arg Ser Glu Asp
65      70      75      80
Thr Ala Met Tyr Tyr Cys Ala Arg
85

```

<210> 52
 <211> 98
 <212> PRT
 <213> Mus musculus

```

<400> 52
Glu Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1      5      10      15
Ser Leu Asn Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
20      25      30
Trp Met Ser Trp Ala Arg Gln Ala Pro Gly Lys Gly Gln Glu Trp Ile
35      40      45
Gly Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu

```

10448-213001.TXT

50 55 60
 Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg

<210> 53
 <211> 87
 <212> PRT
 <213> Mus musculus

<400> 53
 Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe
 1 5 10 15
 Thr Phe Ser Ser Tyr Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys
 20 25 30
 Arg Leu Glu Trp Val Ala Tyr Ile Ser Asn Gly Gly Gly Ser Thr Tyr
 35 40 45
 Tyr Pro Asp Thr Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala
 50 55 60
 Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr
 65 70 75 80
 Ala Met Tyr Tyr Cys Ala Arg
 85

<210> 54
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 54
 Asp Ile Gln Leu Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Asp Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
 85 90 95
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 55
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 55
 Asp Val Val Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Asp Gln Ser Leu Val Tyr Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Tyr Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile

65 Ser Arg Val Glu Ala 70 Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
85 Thr His Trp Pro 85 Gly Thr Phe Gly Gln 90 Gly Thr Lys Val Glu 95 Ile Lys
100 105 110

<400>	56														
Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly
1				5					10					15	
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	Tyr	Ser
			20					25					30		
Asp	Gly	Asn	Thr	Tyr	Leu	Asn	Trp	Phe	Gln	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Asp	Ser	Gly	Val	Pro
	50					55					60				
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65				70						75				80	
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Met	Gln	Gly
				85					90					95	
Thr	His	Trp	Ser	Trp	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys
			100					105					110		

<400>	57															
Asp	Val	Val	Val	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly	
1				5					10					15		
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Leu	Ser	Leu	Val	Asp	Ser	
			20					25					30			
Asp	Gly	Asn	Thr	Tyr	Leu	Asn	Trp	Phe	Leu	Gln	Arg	Pro	Gly	Gln	Ser	
		35					40					45				
Pro	Arg	Arg	Leu	Ile	Tyr	Gln	Leu	Ser	Ser	Arg	Asp	Ser	Gly	Val	Pro	
	50					55					60					
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	
65				70						75					80	
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Met	Gln	Gly	
			85						90					95		
Thr	His	Trp	Pro	Ile	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Glu	Ile	Lys	
			100					105					110			

<400> 58
 Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Gly Leu Val Tyr Ser
 20 25 30
 Asp Gly Asp Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Gly Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

65	Ser	Arg	Val	Glu	Ala	70	Glu	Asp	Val	Gly	Val	75	Tyr	Tyr	Cys	Met	Gln	80
					85						90						95	
	Thr	His	Trp	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	Lys		
				100					105					110				

<400>	59														
Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly
1				5					10					15	
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	His	Ser
			20					25					30		
Asp	Gly	Asn	Thr	Tyr	Leu	Asn	Trp	Phe	Gln	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Asp	Ser	Gly	Val	Pro
	50					55					60				
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65				70						75				80	
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Met	Gln	Gly
				85					90					95	
Thr	His	Trp	Pro	Phe	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Glu	Ile	
			100					105					110		

<400>	60															
Ala	Glu	Glu	Leu	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly	
1				5					10					15		
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Leu	Leu	Ser	
			20					25					30			
Asp	Gly	Asp	Thr	Tyr	Leu	Asn	Trp	Tyr	Gln	Gln	Arg	Pro	Gly	Gln	Ser	
		35					40					45				
Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Asp	Ser	Gly	Val	Pro	
	50					55					60					
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	
65				70						75					80	
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Met	Gln	Gly	
				85					90					95		
Ala	His	Trp	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	Lys	
			100					105					110			

<400> 61
 Asp Val Val Leu Thr Gln Ser Pro Leu Ser Leu Ser Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Thr Gln Ile Leu Val Phe Ser
 20 25 30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Thr Pro Gly His Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Arg Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

65	Ser	Arg	Val	Glu	Ala	70	Glu	Asp	Val	Gly	Val	75	Tyr	Tyr	Cys	Met	Gln	80	Gly
				85	Tyr	Thr	Phe	Gly	Gln	90	Gly	Thr	Lys	Leu	Glu	95	Ile	Lys	
				100					105						110				

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<210> 62
<211> 112
<212> PRT
<213> Homo sapiens
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<400>	62																
Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly		
1				5					10					15			
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	Phe	Ser		
			20					25					30				
Asp	Gly	Asn	Thr	Tyr	Leu	Asn	Trp	Phe	Gln	Gln	Arg	Pro	Gly	Gln	Ser		
		35					40					45					
Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Asp	Ser	Gly	Val	Pro		
	50					55					60						
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile		
65				70						75				80			
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Ile	Tyr	Tyr	Cys	Met	Gln	Gly		
				85					90					95			
Ala	His	Trp	Pro	Leu	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Thr		
			100					105					110				

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<210> 63
<211> 113
<212> PRT
<213> Homo sapiens
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[illegible]

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<210> 64
<211> 113
<212> PRT
<213> Homo sapiens
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<400> 64															
Asp	Ile	Val	Met	Thr	Gln	Thr	Pro	Leu	Ser	Leu	Ser	Val	Thr	Pro	Gly
1				5					10					15	
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	His	Ser
			20					25					30		
Asp	Gly	Lys	Thr	Tyr	Leu	Tyr	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Pro
		35					40					45			
Pro	Gln	Leu	Leu	Ile	Tyr	Glu	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro

10448-213001.TXT

50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
 85 90 95
 Val Gln Leu Pro Arg Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile
 100 105 110
 Lys

<210> 65
 <211> 113
 <212> PRT
 <213> Homo sapiens

<400> 65
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro
 35 40 45
 Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
 85 90 95
 Ile Gln Leu Pro Arg Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile
 100 105 110
 Lys

<210> 66
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 66
 Ala Glu Glu Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val Tyr Ser
 20 25 30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
 85 90 95
 Thr His Trp Pro Lys Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 67
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 67
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Ser Ala Ser Ile Ser Cys Thr Ser Ser Gln Ser Leu Val Tyr Thr

10448-213001.TXT

20 25 30
 Asp Gly Lys Ile Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Phe Lys Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Ala Ile Tyr Tyr Cys Met Gln Gly
 85 90 95
 Thr His Trp Pro Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 68
 <211> 113
 <212> PRT
 <213> Homo sapiens

<400> 68
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Pro Gly
 1 5 10 15
 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Gly Asp Gly Asn Thr Tyr Leu Asn Trp Tyr Leu Gln Lys Ala Gly Gln
 35 40 45
 Ser Pro Gln Leu Leu Ile Tyr Thr Leu Ser Tyr Arg Ala Ser Gly Val
 50 55 60
 Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys
 65 70 75 80
 Ile Ser Arg Val Gln Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln
 85 90 95
 Arg Leu Glu Ile Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110
 Arg

<210> 69
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 69
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Arg Gly Leu Val His Ser
 20 25 30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Ala Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
 85 90 95
 Ile His Trp Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 70
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 70
 Asp Ile Val Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly

10448-213001.TXT

```

1       5       10       15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Asn Leu Val Tyr Ser
20
Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50
Asp Ser Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65
Ser Arg Val Glu Ala Glu Asp Val Gly Ile Tyr Tyr Cys Met Gln Gly
85
Thr Arg Trp Pro Tyr Thr Phe Gly Glu Gly Thr Lys Leu Glu Ile Lys
100      105      110

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<210> 71
 <211> 127
 <212> PRT
 <213> Homo sapiens

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<400> 71
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1       5       10       15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
20
Thr Met His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
35
Gly Arg Ile Arg Asn Lys Asp Asn Ser Tyr Ala Thr Ala Tyr Ala Ala
50
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Glu Asn Thr
65
Ala Tyr Leu Gln Met Asn Ser Leu Lys Ile Glu Asp Thr Ala Val Tyr
85
Tyr Cys Thr Arg Gly Ser Ser Met Val Arg Gly Val Asn Gly Tyr Tyr
100      105      110
Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115      120      125

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<210> 72
 <211> 126
 <212> PRT
 <213> Homo sapiens

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<400> 72
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1       5       10       15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe Ser Asp Tyr
20
Tyr Met Asp Trp Val Arg Gln Ala Pro Ala Lys Gly Leu Glu Trp Leu
35
Ala Arg Thr Arg Asn Lys Ala Asn Ser Tyr Thr Thr Glu Tyr Ala Ala
50
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Met Asn Ser
65
Leu Ser Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Ile Tyr
85
Tyr Cys Val Cys Val Arg Thr Asp Cys Ser Ser Thr Arg Cys His Gly
100      105      110
Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115      120      125

```

<210> 73
 <211> 126
 <212> PRT

<213> Homo sapiens

<400> 73

```

1  Glu Val Gln Leu Val Asp Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
   1      5      10      15
2  Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp His
   20      25      30
3  Tyr Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
   35      40      45
4  Gly Arg Ile Arg Asn Lys Ala Asn Ser Tyr Thr Thr Glu Tyr Ala Ala
   50      55      60
5  Ser Leu Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Glu Asn Ser
   65      70      75      80
6  Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
   85      90      95
7  Tyr Cys Ala Arg Ala Glu Thr Asp Arg Gly Tyr Tyr Tyr Tyr His Gly
   100      105      110
8  Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
   115      120      125

```

<210> 74

<211> 126

<212> PRT

<213> Homo sapiens

<400> 74

```

1  Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
   1      5      10      15
2  Ser Leu Lys Val Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
   20      25      30
3  Ala Met His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
   35      40      45
4  Gly Arg Ile Arg Ser Lys Ala Asn Ser Tyr Ala Thr Ala Tyr Ala Ala
   50      55      60
5  Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
   65      70      75      80
6  Ala Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
   85      90      95
7  Tyr Cys Thr Arg Trp Val Leu Gly Arg Gly Ser Glu Gly His Tyr Tyr
   100      105      110
8  Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
   115      120      125

```

<210> 75

<211> 115

<212> PRT

<213> Homo sapiens

<400> 75

```

1  Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
   1      5      10      15
2  Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
   20      25      30
3  Ala Ile His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
   35      40      45
4  Gly His Ile Arg Asn Lys Pro Asn Asn Tyr Ala Thr Ala Tyr Ala Ala
   50      55      60
5  Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
   65      70      75      80
6  Ala Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
   85      90      95
7  Tyr Cys Ala Ser Gly Ser Tyr Leu Lys Gly Gln Gly Thr Leu Val Thr
   100      105      110

```

Val Ser Ser
115

<210> 76
<211> 125
<212> PRT
<213> Homo sapiens

<400> 76
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Asp Ile Glu Asp Thr Ala Met Phe Pro Tyr Tyr Tyr Gly Met
100 105 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 77
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

<400> 77
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Asp Arg Arg Asn Tyr Asp Phe Trp Ser Gly Xaa Tyr Tyr Tyr
100 105 110
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 78
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

```

<400> 78
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1      5      10      15
Ser Gln Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Tyr
 20      25      30
Val Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35      40      45
Ser Val Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
 65      70      75      80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85      90      95
Ala Lys Gly Arg Val Cys Ser Gly Gly Arg Cys Tyr Pro Xaa Tyr Tyr
100      105      110
Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
115      120      125

```

```

<210> 79
<211> 128
<212> PRT
<213> Homo sapiens

```

```

<220>
<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

```

```

<400> 79
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20      25      30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35      40      45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65      70      75      80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85      90      95
Ala Lys Asp Arg Arg Asn Tyr Asp Phe Trp Ser Gly Xaa Tyr Tyr Tyr
100      105      110
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115      120      125

```

```

<210> 80
<211> 116
<212> PRT
<213> Homo sapiens

```

```

<400> 80
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20      25      30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35      40      45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65      70      75      80

```

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 Gly Ser Gly Trp Tyr Trp Gly Gln Gly Thr Leu Val
100
Thr Val Ser
115

```
<210> 81
<211> 124
<212> PRT
<213> Homo sapiens
```

<400>	81															
Glu	Val	Gln	Leu	Leu	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	
1				5					10					15		
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr	
			20					25					30			
Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	
		35					40					45				
Ser	Gly	Ile	Ser	Gly	Ser	Gly	Gly	Ser	Thr	Tyr	Tyr	Ala	Asp	Ser	Val	
	50					55					60					
Glu	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr	
65					70					75					80	
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
			85						90					95		
Ala	Asn	Asp	Tyr	Tyr	Gly	Ser	Gly	Arg	Tyr	Phe	Thr	Tyr	Ala	Thr	Asp	
			100					105					110			
Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser					
		115					120									

```
<210> 82
<211> 123
<212> PRT
<213> Homo sapiens
```

<400>	82															
Glu	Val	Gln	Leu	Leu	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	
1				5					10					15		
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr	
			20					25					30			
Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	
		35					40					45				
Ser	Ala	Ile	Ser	Gly	Ser	Gly	Tyr	Thr	Thr	Tyr	Tyr	Ala	Asp	Ser	Val	
	50					55					60					
Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr	
65					70					75					80	
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
				85					90							
Ala	Lys	Lys	Pro	Gly	Asp	Tyr	Gly	Ser	Gly	Ser	Tyr	Tyr	Leu	Asp	Tyr	
			100					105					110			
Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser						
		115					120									

```
<210> 83
<211> 117
<212> PRT
<213> Homo sapiens
```

<400> 83
Gln Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

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Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Tyr Tyr Gly Asp Gly Met Asp Val Trp Gly Lys Gly Thr Met
 100 105 110
 Ile Thr Val Ser Ser
 115

<210> 84
 <211> 125
 <212> PRT
 <213> Homo sapiens

<400> 84
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Ala Val Val Arg Gly Val Ile Ser Tyr Tyr Tyr Tyr Gly Met
 100 105 110
 Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 85
 <211> 120
 <212> PRT
 <213> Homo sapiens

<400> 85
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Ser Pro Asp Val Val Val Pro Ala Ala Asp Tyr Trp Gly Gln
 100 105 110
 Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 86
 <211> 128
 <212> PRT
 <213> Homo sapiens

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<400> 86

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe Ser Thr Gly
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Ile Asp Tyr Ala Glu
 50 55 60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Phe Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Ala Leu Thr Arg Tyr Phe Phe Asp Ser Ser Gly Tyr
 100 105 110
 Pro His Phe Asp His Trp Gly His Gly Thr Leu Val Thr Val Ser Ser
 115 120 125

<210> 87

<211> 127

<212> PRT

<213> Homo sapiens

<400> 87

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Asp Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Asp Arg Thr Pro Arg Asn Ile Val Ala Thr Lys Gly Met Asp
 100 105 110
 Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
 115 120 125

<210> 88

<211> 119

<212> PRT

<213> Homo sapiens

<400> 88

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Ser Trp Asn Ser Gly Ser Ile Gly Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Thr His Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly
 100 105 110
 Thr Thr Val Thr Val Ser Ser

115

<210> 89
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 89
 Gln Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val His Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Trp Gly Leu Arg Gly Glu Gly Asp Tyr Tyr Met Asp
 100 105 110
 Val Trp Gly Lys Gly Thr Met Val Thr Val Ser Ser
 115 120

<210> 90
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 90
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
 50 55 60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Pro His Thr Phe Gly Gly Val Ile Val Ile Ser Asp
 100 105 110
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 91
 <211> 123
 <212> PRT
 <213> Homo sapiens

<400> 91
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Arg Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
 50 55 60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr

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65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Ala Ser Tyr Ser Tyr Gly Arg Gly Cys Phe Asp Tyr
 100 105 110
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 92
 <211> 121
 <212> PRT
 <213> Homo sapiens

<400> 92
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Asp Ile Ser Trp Gly Asp Leu Gly Leu Asp Tyr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 93
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 93
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
 50 55 60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Asp Ser Leu Pro Pro His Arg Val Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser
 115

<210> 94
 <211> 123
 <212> PRT
 <213> Homo sapiens

<400> 94
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala

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	20		25		30										
Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
	35						40					45			
Gly	Arg	Ile	Lys	Ser	Lys	Thr	Asp	Gly	Gly	Thr	Thr	Asp	Tyr	Ala	Ala
	50					55					60				
Pro	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Asn	Thr
	65				70				75					80	
Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Lys	Thr	Glu	Asp	Thr	Ala	Val	Tyr
			85					90						95	
Tyr	Cys	Thr	Thr	Ser	Ile	Pro	Gly	Ile	Ala	Val	Ala	Gly	Thr	Asp	Tyr
			100				105						110		
Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser					
	115						120								

<210> 95
 <211> 426
 <212> DNA
 <213> Mus musculus

<400> 95																
atgaagttgc	ctgttaggct	gttggtgctc	tggattcggg	agacaatcgg	cgatgtttgtg											60
atgacccaga	ctccactcac	tttgtcgggt	accggttgac	acccagcctc	catctcttgc											120
aagtcaagtc	agagcctctt	agatagtgat	ggaaagacat	ttttgaattg	gttggttacag											180
aggccaggcc	agtctccaaa	gcgccataatc	tatctggtgt	ctaaactgga	ctctggagtc											240
cctgacaggt	tacttggcag	tggatcaggg	acagatttca	cactgaaaat	cagcagagtg											300
gaggctgagg	atttgggagt	ttattattgc	tggcaaggta	cacattttcc	gtacacgttc											360
ggagggggga	ccaagctgga	aataaaacgg	gctgatgctg	caccaactgt	atccatcttc											420
ccacca																426

<210> 96
 <211> 443
 <212> DNA
 <213> Mus musculus

<400> 96																
atggacttcg	ggttaaactt	ggttttcttt	gttggtttttt	atcaagggtgt	gcattgtgag											60
gtgcagcttg	ttgagtcttg	aggaggattg	gtgcagccta	aagggtcatt	gaaactctca											120
tgtgcagcct	ctggattcag	cttcaatgcc	tacgccatga	actgggtccg	ccaggctcca											180
ggaaaagggt	tggaatgggt	tgctcgata	agaactaaaa	ataataatta	tgcaacatat											240
tatgccgatt	cagtgaaga	cagatacacc	atctccagag	atgattcaga	aagtatgctc											300
tttctgcaaa	tgaacaactt	gaaaactgag	gacacagcca	tgtattactg	tgtgaccttt											360
tacggtaacg	gtgtctgggg	cacagggacc	acggtcaccg	tctcctcagc	caaaacaaca											420
gccccatccg	tctatcccct	ggt														443

<210> 97
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> humanized heavy chain

<400> 97																
gaggtgcaat	tggttgagtc	tggaggagga	ttggtgaagc	ctgggggggtc	attgagactc											60
tcagtgcag	cctctggatt	cactttcagt	gcctacgcca	tgaactgggt	ccgccagggt											120
ccaggaagg	gtttggaatg	ggttgggccg	ataagaacta	aaaataataa	ttatgcaaca											180
tattatgccg	attcagtgaa	agacagattc	accatctcca	gagatgattc	aaaaaacacg											240
ctctatctgc	aatgaacag	cttgaaaact	gaggacacag	ccgtgtatta	ctgtaccacc											300
ttttacggta	acggtgtctg	gggccagggg	accctggtca	ccgtcagctc	agccaaa											357

<210> 98
 <211> 344
 <212> DNA

<213> Artificial Sequence

<220>

<223> humanized light chain

<400> 98

ctacgtagtg	atgacccagt	ctccactctc	cttgcccgtt	acccttggac	agccagcctc	60
catctcttgc	aagtcaagtc	agagcctctt	agatagtgat	ggaaagacat	ttttgaattg	120
gtttcagcag	aggccaggcc	agtctccaag	gcgcctaata	tatctggtgt	ctaaactgga	180
ctctggagtc	cctgacaggt	tcagcgggca	tggatcaggg	acagatttca	cactgaaaat	240
cagcagagtg	gaggctgagg	atgttggagt	ttattattgc	tggcaaggta	cacattttcc	300
gtacacgttc	ggacaaggga	cccgaactga	aataaaacgt	acgg		344

<210> 99

<211> 443

<212> DNA

<213> Mus musculus

<400> 99

accaggggat	agacggatgg	ggctgttggt	ttggctgagg	agacgggtgac	cgtgggtccct	60
gtgccccaga	caccgttacc	gtaaaaggtc	acacagtaat	acatggctgt	gtcctcagtt	120
ttcaagttgt	tcattttgcag	aaagagcata	ctttctgaat	catctctgga	gatgggtgat	180
ctgtctttca	ctgaatcggc	ataatatgtt	gcataattat	tatttttagt	tcttatgcga	240
gcaaccatt	ccaaaccctt	tcctggagcc	tggcggaccc	agttcatggc	gtaggcattg	300
aagctgaatc	cagaggctgc	acatgagagt	ttcaatgacc	ctttaggctg	caccaatcct	360
cctccagact	caacaagctg	cacctcaca	tgcacacctt	gataaaaaac	aacaaagaaa	420
accaagttta	acccgaagtc	cat				443

<210> 100

<211> 148

<212> PRT

<213> Mus musculus

<400> 100

Met	Asp	Phe	Gly	Leu	Asn	Leu	Val	Phe	Phe	Val	Val	Phe	Tyr	Gln	Gly
1				5				10						15	
Val	His	Cys	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln
			20					25					30		
Pro	Lys	Gly	Ser	Leu	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Ser	Phe
		35					40					45			
Asn	Ala	Tyr	Ala	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu
		50				55					60				
Glu	Trp	Val	Ala	Arg	Ile	Arg	Thr	Lys	Asn	Asn	Asn	Tyr	Ala	Thr	Tyr
65					70					75				80	
Tyr	Ala	Asp	Ser	Val	Lys	Asp	Arg	Tyr	Thr	Ile	Ser	Arg	Asp	Asp	Ser
				85					90				95		
Glu	Ser	Met	Leu	Phe	Leu	Gln	Met	Asn	Asn	Leu	Lys	Thr	Glu	Asp	Thr
			100					105					110		
Ala	Met	Tyr	Tyr	Cys	Val	Thr	Phe	Tyr	Gly	Asn	Gly	Val	Trp	Gly	Thr
		115					120					125			
Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Ala	Lys	Thr	Thr	Ala	Pro	Ser	Val
		130				135					140				
Tyr	Pro	Leu	Val												
145															

<210> 101

<211> 426

<212> DNA

<213> Mus musculus

<400> 101

tgggtgggaag	atggatacag	ttgggtgcagc	atcagcccgt	tttattttcca	gcttgggtccc	60
ccctccgaac	gtgtacggaa	aatgtgtacc	ttgccagcaa	taataaactc	ccaaatcctc	120

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agcctccact ctgctgattt tcagtgtgaa atctgtccct gatccactgc cagtgaacct 180
gtcagggact ccagagtcca gtttagacac cagatagatt aggcgctttg gagactggcc 240
tggcctctgt aacaaccaat tcaaaaatgt ctttccatca ctatctaaga ggctctgact 300
tgacttgcaa gagatggagg ctgggtgtcc aacggtaacc gacaaagtga gtggagtctg 360
ggcatcaca acatcgccga ttgtctcccg aatccagagc accaacagcc taacaggcaa 420
cttcat 426

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<210> 102
 <211> 142
 <212> PRT
 <213> Mus musculus

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<400> 102
Met Lys Leu Pro Val Arg Leu Leu Val Leu Trp Ile Arg Glu Thr Ile
 1      5      10      15
Gly Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Val
 20     25     30
Gly His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp
 35     40     45
Ser Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln
 50     55     60
Ser Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val
 65     70     75     80
Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys
 85     90     95
Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln
100    105    110
Gly Thr His Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
115    120    125
Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro
130    135    140

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<210> 103
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> humanized heavy chain

```

<400> 103
tttggctgag ctgacgggtga ccagggtccc ctggccccag acaccgttac cgtaaaaggt 60
ggtacagtaa tacacggctg tgtcctcagt tttcaagctg ttcatttgca gatagagcgt 120
gttttttgaa tcattctctg agatgggtgaa tctgtctttc actgaatcgg cataatatgt 180
tgcataatta ttatttttag ttcttatgcg gccaaaccat tccaaaccct ttcttgagc 240
ctggcggacc cagttcatgg cgtaggcact gaaagtgaat ccagaggctg cacatgagag 300
tctcaatgac cccccaggct tcaccaatcc tcctccagac tcaaccaatt gcacctc 357

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<210> 104
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized heavy chain

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<400> 104
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ala Tyr
 20     25     30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35     40     45

```

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Gly Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60
 Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Ser Lys Asn Thr
 65 70 75 80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
 100 105 110
 Val Thr Val Ser Ser Ala Lys
 115

<210> 105
 <211> 344
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> humanized light chain

<400> 105
 ccgtacgttt tatttccagt cgggtccctt gtccgaacgt gtacggaaaa tgtgtacctt 60
 gccagcaata ataaactcca acatcctcag cctccactct gctgattttc agtgtgaaat 120
 ctgtccctga tccactgccg ctgaacctgt cagggactcc agagtccagt ttagacacca 180
 gatagattag ggccttggga gactggcctg gcctctgctg aaaccaattc aaaaatgtct 240
 ttccatcact atctaagagg ctctgacttg acttgcaaga gatggaggct ggctgtccaa 300
 gggtaacggg caaggagagt ggagactggg tcatcactac gtag 344

<210> 106
 <211> 114
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized light chain

<400> 106
 Tyr Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Phe Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
 85 90 95
 Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
 100 105 110
 Arg Thr

<210> 107
 <211> 112
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized sequence

<400> 107
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly

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1	5	10	15												
His	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asp	Ser
20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Asp	Gly	Lys	Thr	Phe	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln	Ser
Pro	Arg	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val	Pro
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Trp	Gln	Gly
Thr	His	Phe	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Glu	Ile	Lys
100	105	110													

<210> 108
 <211> 351
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> humanized heavy chain

<400> 108	
gaggtgcaat tgggtgagtc tggaggagga ttggtgaagc ctgggggggtc attgagactc	60
tcatgtgcag cctctggatt cactttcagt gcctacgcca tgaactgggt cgcgcaggct	120
ccaggaaagg gtttgaatg ggttgccgc ataagaacta aaaataataa ttatgcaaca	180
tattatgccg attcagtga agacagattc accatctcca gagatgattc aaaaaacacg	240
ctctatctgc aaatgaacag cttgaaaact gaggacacag ccgtgtatta ctgtaccacc	300
ttttacggtg acggtgtctg gggccagggg accctggtca ccgtcagctc a	351

<210> 109
 <211> 336
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> humanized light chain

<400> 109	
gatgtagtga tgaccagtc tccactctcc ttgcccgtta cccttgga gccagcctcc	60
atctcttgca agtcaagtca gagcctctta gatagtgatg gaaagacatt tttgaattgg	120
tttcagcaga ggccaggcca gtctccaagg cgcctaattc atctggtgtc taaactggac	180
tctggagtcc ctgacagggt cagcggcagt ggatcaggga cagatttcac actgaaaatc	240
agcagagtgg aggctgagga tgttgaggtt tattattgct ggcaaggtag acattttccg	300
tacacgttcg gacaaggag cgcactggag atcaag	336

<210> 110
 <211> 330
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> human IgG1-FCRmut protein

<400> 110															
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys															
1	5	10	15												
Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr
20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser
Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser
100	105	110													

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Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65      70      75      80
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85      90      95
Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100     105     110
Pro Ala Pro Glu Leu Ala Gly Ala Pro Ser Val Phe Leu Phe Pro Pro
115     120     125
Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130     135     140
Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145     150     155     160
Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165     170     175
Glu Gln Tyr Asn Ser Thr Tyr Arg Val Ser Val Leu Thr Val Leu
180     185     190
His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195     200     205
Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210     215     220
Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Ser Arg Asp Glu
225     230     235     240
Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245     250     255
Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260     265     270
Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275     280     285
Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290     295     300
Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305     310     315     320
Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325     330

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<210> 111
 <211> 990
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> human IgG1-FCRmut DNA

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<400> 111
gcctccacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg      60
ggcacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggg gacggtgtcg      120
tggaactcag gcgccctgac cagcggcgctg cacaccttcc cggctgtcct acagtcctca      180
ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg caccagacc      240
tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagaa agttgagccc      300
aaatcttgtg acaaaactca cacatgcccc ccgtgccccag cacctgaact cgcgggggca      360
ccgtcagttc tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt      420
gaggtcacat gcgtgggtgg ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg      480
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac      540
agcacgtacc gtgtgggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag      600
gagtacaagt gcaagggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc      660
aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggatgag      720
ctgaccaaga accaggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc      780
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg      840
ctggactccg acggctcctt cticctctac agcaagctca ccgtggacaa gagcaggtgg      900
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg      960
cagaagagcc tctccctgtc tccgggtaaa

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<210> 112

<211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> human C Kappa protein

<400> 112
 Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15
 Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 20 25 30
 Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 35 40 45
 Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 50 55 60
 Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 65 70 75 80
 Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 85 90 95
 Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 100 105

<210> 113
 <211> 321
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> human C Kappa DNA

<400> 113
 cgtacggtgg ctgcaccatc tgtcttcac tccccgccat ctgatgagca gttgaaatct 60
 ggaactgcct ctgttggtg cctgctgaat aacttctatc ccagagaggc caaagtacag 120
 tggaagggtg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 180
 agcaaggaca gcacctacag cctcagcagc accctgaccc tgagcaaagc agactacgag 240
 aaacacaaag tctacgcctg cgaagtcacc catcaggggc tgagctcgcc cgtcacaaag 300
 agcttcaaca ggggagagtg t 321

<210> 114
 <211> 333
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> human IgG1-FCRmut protein

<400> 114
 Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro
 1 5 10 15
 Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val
 20 25 30
 Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala
 35 40 45
 Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly
 50 55 60
 Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly
 65 70 75 80
 Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys
 85 90 95
 Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys
 100 105 110
 Pro Pro Cys Pro Ala Pro Glu Leu Ala Gly Ala Pro Ser Val Phe Leu

		115					120					125			
Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu
	130					135					140				
Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys
145					150					155					160
Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys
				165					170					175	
Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu
			180					185					190		
Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys
		195					200					205			
Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys
	210					215					220				
Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser
225					230					235					240
Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys
				245					250					255	
Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln
			260					265					270		
Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly
		275					280					285			
Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln
	290					295					300				
Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn
305					310					315					320
His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys			
				325					330						

<220>
<223> human IgG1-FcRmut DNA

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<210> 116
<211> 109
<212> PRT
<213> Artificial Sequence
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<400> 116

Ser Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser
 1 5 10 15
 Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn
 20 25 30
 Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala
 35 40 45
 Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys
 50 55 60
 Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp
 65 70 75 80
 Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu
 85 90 95
 Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 100 105

<210> 117

<211> 341

<212> DNA

<213> Artificial Sequence

<220>

<223> human C Kappa DNA

<400> 117

tcaaagcgta	cggtggctgc	accatctgtc	ttcatcttcc	cgccatctga	tgagcagttg	60
aaatctggaa	ctgcctctgt	tgtgtgcctg	ctgaataact	tctatcccag	agaggccaaa	120
gtacagtggg	aggtggataa	cgccctccaa	tcgggtaact	cccaggagag	tgtcacagag	180
caggacagca	aggacagcac	ctacagcctc	agcagcacc	tgaccctgag	caaagcagac	240
tacgagaaac	acaaagtcta	cgcttgcgaa	gtcaccatc	agggcctgag	ctcgcccgtc	300
acaaagagct	tcaacagggg	agagtgttag	tctagagcag	c		341

<210> 118

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 118

ttaccaatt gtgtcctgtc cgaggtgcag cttgttgagt ctg 43

<210> 119

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 119

gttttaggct gagctgacgg tgaccgtggg ccctgtg 37

<210> 120

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 120

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ttcccagggt cccgttccga tgttgtgatg acccagact 39

<210> 121
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 121
 agccaccgta cgctttattt ccagcttggt cc 32

<210> 122
 <211> 56
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 122
 tgggaatc gatacagttg gtgcagcatc agcacgcttt atttcagct tgggcc 56